

ALBERTA TREE NURSERY

CANADIANA

JUL 8 1983

AND

HORTICULTURAL CENTRE

R. R. 6

973 - 3351

Edmonton, Alberta

The Alberta Tree Nursery and Horticulture Centre is a branch of the Plant Industry Division of Alberta Agriculture. The Centre, together with the Alberta Horticultural Research Center, located in southern Alberta at Brooks, comprises the Provincial Governments' program of support and involvement in Horticulture. The Tree Nursery is the center of production for trees and shrubs used for the shelterbelt program, Provincial Parks, Indian Affairs, and reclamation work done by the Alberta Government.

The original Tree Nursery was located in the Cooking Lake area from 1910 to 1930. The Nursery which operated under federal jurisdiction, was part of the first Forest Reserve in Alberta and was concerned primarily with providing shelterbelt trees to settlers.

When that Nursery was abandoned the Alberta Forest Service moved much of the stock to the grounds of the Alberta Hospital at Oliver. The objectives of the Provincial Tree Nursery, as it was then called, were to continue providing shelterbelt trees and plants for reforestation. During the early 1940's it became obvious that the site was inadequate and an 18 acre site was cleared, across the road, on what was then a Government Fur Farm. Today the main buildings and grounds occupy this site where the first trees were planted in 1949. In 1951, management of the Provincial Tree Nursery was transferred to the Department of Agriculture. Today, the Alberta Tree Nursery and Horticulture Centre as it is now called, occupies 251 hectares, 154 of this being arable land.

The permanent staff at the Centre consists of 30 technical and support staff, 5 prof. Horticulturists and a clerical staff of three. Seasonal staff is hired from April until December. During the busiest periods, the Nursery has up to 110 labourers. The most hectic time at the Nursery is during the spring shipping period. This is a four week period between April 20 and May 20. The second most active period is during the month of October when the plant material is harvested, graded, and put into storage.

DDN
314385

SHELTERBELT PROGRAM

The need for shelterbelts to counteract the wind's effects was realized by the Government of Canada who in 1901 adopted a policy to propagate and distribute trees for farm use through Federal forest nurseries. In 1930, the Government of Alberta began producing and distributing trees for shelterbelts. Since then, approximately 50 million trees and shrubs have been distributed by the Provincial Government.

The Alberta Department of Agriculture distributed trees and shrubs of seedling size for the farm shelterbelt program. The trees are provided free of charge on a first come, first serve basis. Applications for trees should be made through the office of the District Agriculturist. A farmer agrees to pay the shipping charges, not to sell or remove the planted tree from the property at any future date, and to maintain the planting site.

Acreage owners can also make application for shelterbelt trees but farmers will be given priority. Publicly owned grounds such as school grounds, playgrounds, hospitals, etc. are also eligible for trees and shrubs. More information on the distribution of trees and shrubs is available in the publication "Alberta Agriculture, Policy for Distribution of Trees and Shrubs."

The production and distribution of the trees and shrubs is the responsibility of the Alberta Tree Nursery & Horticulture Centre. In 1982, 2.5 million trees and shrubs were shipped to 62 agricultural distribution points throughout the province.

Thirty-three tree and shrub species are propagated for the Shelterbelt Program. Smaller quantities of about 10 shrubs are propagated for fruit promotion. Caraganas are produced in the greatest volume because of their usefulness in field windbreaks. Most plants leave the nursery as 2 year old seedlings, about 50 centimeters in height. The poplars and willows are 1 year old rooted cuttings, while the conifers are 4 year old transplants. All plant material is packaged either in bundles of 10 for conifers or 25 for deciduous stock. The planting stock is graded prior to handling.

The actual growing of the shelterbelt plant material takes place in the designated fields of the Nursery. Most of the soils of the Nursery are of a heavy textured black clay loam. Because of the heaviness of this soil, it is not ideally suited for nursery crop production, but the soil is fertile and proper management keeps it arable. As a rule, a nursery crop stays on the same field for 2 years. If a field is very heavy, run down, or infested with weeds, it will be seeded to grass and left this way for a few years. The normal rotation procedure is for a field to be in production 2 years and then given 1 year rest. During this fallow season, the field may be given a dressing of peat moss, which is tilled into the soil. The field is seeded to oats which is plowed under the same summer.

The deciduous stock is seeded in the fall, usually in the first week of October. Crops are row seeded, 5 rows to a seedbed. Since most are stratified wet, a great deal of the seeding is done by hand. The seeded beds are covered with a light dressing of sand. An underground irrigation system is in place to maintain optimum moisture condition. In 2 years time, these crops are mature and ready for harvesting. In the past, coniferous plants were also seeded outdoors in seedbeds. However, the coniferous seedlings are now raised in containers. The survival rate of these container grown transplants is close to 100%. Transplanting of spruce and pine starts in the middle of August and is usually completed by the second week in September. This planting stock will be harvested 3 years later. The fields are irrigated if rainfall is inadequate.

The propagation of willows and poplar by hardwood cuttings is another major activity in the Plant Propagation Program. A stock of willow and poplar stool beds are kept at the Nursery. In late September, year old whips are tied in bunches before harvesting. The whips are harvested in the winter and cut into 15 cm. cuttings. The Nursery requires approximately 1 million hardwood cuttings in order to produce 700,000 rooted cuttings the next year. The cuttings are hand planted. This activity takes place from the end of May until the sprouting of the cuttings is well established. Here we see a new crop of willows developing. These poplar cuttings can grow to a height of 3 feet before the middle of October.

From the end of May until September, weed control is the most labor intensive activity at the Nursery. Preplanting treatments of herbicides is a common practice for weed control. Chemicals may also be used on the established one year old plants. Mechanical weed control is used on the established one year old crops and transplants. Mechanical cultivation has the advantage of breaking up the soil crust which readily develops on these heavy clay soils. Hand weeding is always a big job on the newly seeded fields. This can be a problem during extended wet periods when the weeds have an opportunity to get ahead of the nursery crop. However, the seedbeds are usually cleaned up during June.

The harvesting of all deciduous stock begins in October. Prior to handlifting the crop, the plants are undercut with a shaking blade. The taller growing crops are cut back with a chopping machine which removes the upper portion of the plants. This results in plants with maximum heights of 50 cm. This plant material is then graded, bundled, and counted prior to storage. Stock is stored both outdoors and indoors.

The heeling-in grounds will contain about 1/2 of the crop by the middle of November. The remainder of the crop is stored in pallet boxes in a temperature controlled building, where temperatures are maintained around 0°C. The roots are protected with a layer of peat moss.

Shipping of the plants usually starts the last week of April. The plant material, with moist peat moss around the roots is wrapped first in polyethelene and then burlap. Each bundle is addressed to the individual farmer. The county officials collect their district's orders at the Tree Nursery and then distribute them to the farmers from their office. The nursery deals with about 75 districts in this manner.



Digitized by the Internet Archive
in 2017 with funding from
University of Alberta Libraries

<https://archive.org/details/albertatreenurse00unse>

CONTAINER PROGRAM

The Container Program dates back to 1965. The Nursery has experimented with many different types of containers, eg. Bullets, Kinghorn, ARC Sausages and Spencer-Lemaire. The basic container now used for the greenhouse propagation is the Spencer-Lemaire Container, also called a root trainer. This is a thin walled hard plastic container which opens up like a book. Different sizes of the container are available. The size of the container used is based on the purpose of the stock.

Production from 1965 - 1970 climbed to the hundreds of thousands; from 1970 - 1977 it climbed from one million to six million per year. Container production, until 1978, was 80% White Spruce and Lodgepole Pine for reforestation purposes for Alberta Energy and Natural Resources and private companies. With the new nursery at Smoky Lake taking over reforestation in 1978, the container program was able to concentrate more fully on the Shelterbelt Farmstead Program needs. Our production, in 1978, was lowered to just over one million to facilitate using different size containers. Our production aim is based on the yearly requirements of the Shelterbelt Program, Provincial Parks, Special Orders and Trials, as well as on greenhouse container space to meet these requirements.

The major crops grown in the seven quonset greenhouses are coniferous plants. A crop will be grown summer or winter for a period of up to 7 months. Thereafter the plants are hardened off in five lathhouses covered with shade cloth. The containers are sown with several seeds per cavity. The number of seeds is based on the germination tests. This procedure then requires hand thinning of the seedlings. Irrigation and fertilizer applications are automated. Natural light during the winter months is supplemented with artificial lights. Weed and pest control are necessary. When the seedlings are transplanted into large containers they are moved to the lathhouses. The plants are watered with overhead sprinklers and shade cover is provided.

A variety of native trees and shrubs are shipped to the various Provincial Parks. The plant material is shipped in 1, 2 and 5 gallon pots, bushel baskets, and balled and burlaped.

Miscellaneous plant propagation activities include the production of Arbor Day Trees and seedlings for Indian Affairs: and the provision of planting stock for municipal parks. The Arbor Day Program entails the annual production of approximately 40,000 Colorado Spruce seedlings for school boards. Many of the ornamental blue spruce in Alberta are a result of this program.

SEED CENTRE

Activities of the seed centre are concentrated in the seed testing laboratory, seed collection and extraction, and seed storage.

Seed Testing Lab

In 1981, over 1,300 seed tests were carried out to determine moisture content, purity, germination, stratification, etc. The growth chamber and the x-ray unit are used for deciduous species.

The testing unit processed, stratified and graded over 140 Kg of seed of 30 different species of seed for production at the Alberta Tree Nursery and Horticulture Centre. Over 150 requests for seed were filled for various research and production programs.

Seed Exchange Program

The Alberta Tree Nursery and Horticulture Centre is involved in an exchange program of high quality tested seed samples with other seed collectors for the purpose of testing and developing new plant cultivars.

Seed Collection and Extraction

In 1981, fruits of over 30 species of deciduous and coniferous trees and shrubs were harvested to provide adequate seed supply for the Alberta Tree Nursery & Horticulture Centre. Large quantities of seed were collected from wild stands. During cleaning, small amounts of fruit were macerated by hand for investigative purposes. For larger quantities, a Dybvig separator is used to pulp the flesh and clean the seed. After the initial cleaning, the seeds were sun dried, tested and placed into cold storage. At the end of 1981, 1,900 Kg of seed were in storage.

Seed Sale

The Landscape Alberta Nursery Trades Association and the Horticulture Branch have instituted a program to satisfy the seed requirements of interested individual growers and commercial nurseries.

Seed Investigations

The seed testing laboratory has undertaken several seed study projects. These include investigations into:

Seed stratification

Propagation

Overwinter Storage

Seed evaluation

and effects of rodent repellents in stratified deciduous seed.

FARM OPERATIONS

Farm operations are responsible for:

- Field and shelterbelt cultivation
- Irrigation
- Chemical and fertilizer application
- Equipment maintenance and repairs
- Equipment manufacturing and remodelling

The field operations have already been covered under the Shelterbelt Program.

Another important segment of the Nursery operations is the equipment maintenance which is operated by 3 machinery maintenance mechanics. In addition to the maintenance and repair work, the garage workshop also builds specialized equipment. The irrigation supervision and co-ordination is handled by one person. The nursery employs 5 gardeners and 2 supervisors who are responsible for all tractor and spraying operations, and shelterbelt maintenance.

VEGETABLE PROGRAM

The vegetable program at the Alberta Tree Nursery & Horticulture Centre consist mainly of extension activities and demonstrational research plots. The purpose, to provide an information service to market gardeners, vegetable growers and other commercial horticulture crop producers. Assistance is also given to the colleges at Olds, Vermilion and Fairview and the University of Alberta who annually conduct vegetable cultivar trials in co-operation with Alberta Agriculture.

The purpose of the market garden vegetable research program is to evaluate cultivars and various cultural techniques. To determine better production methods, particularly improving earliness, yield and the potential of crops important to the areas where the tests are conducted. Trials are carried out at two sites, Edmonton and Peace River. These sites are both in areas where there is a concentration of commercial production.

The 1982 research program consists of a cultivar testing of cucumber, corn, cauliflower, pumpkin, storage cabbage and peas. An ongoing project is the evaluation of mulches and plastic tunnels in a variety of vegetable crops.

TURF PROGRAM

The addition of a sod extension specialist to the staff of the Alberta Tree Nursery and Horticulture Centre added a new dimension to the programs and services offered by The Nursery. In addition to the extension work, the turf program involves demonstration and research plots.

A low maintenance turf trial will evaluate 35 grasses for their drought tolerance and suitability as lawn grasses. Another trial is evaluating cultivars of Kentucky Bluegrass and Perennial Ryegrass for color, vigor, nutrient requirements, thatch development, disease resistance, etc.

The arboretum will also serve as a turf demonstration area. The 19 plots will demonstrate the effect of various maintenance practices in a lawn.

DEMONSTRATION AREAS

McCalla Fruit Orchard

This one hectare fruit orchard was established for public use and is an evaluation site for this region of the province. The orchard contains a variety of apples, crabapples, applecrabs, plums and sour cherries.

The orchard was named after Mr. P.D. McCalla, who after 30 years of service to Alberta Agriculture, retired in January 1981.

Arboretum

The arboretum presently occupies 1.2 hectares but is being expanded to include another half hectare. The arboretum provides the public an opportunity to study recommended varieties that are suitable for shelterbelt use. There are three specimens of each of the 115 species planted within the arboretum.

Native Arboretum

The native arboretum is planted with native woody plants that are suitable for landscaping use. The plant material in this demonstration area exemplifies the fact that there are native species that could be better utilized in yards and gardens.

Saskatoon Plantation

The saskatoon plantation was established to maintain mother stocks of the available cultivated saskatoon cultivars, to study and improve production procedures, to provide production stock and to provide a demonstration area for prospective growers. Eventually, all the known saskatoon cultivars suitable for the Prairies will be planted but presently there are six different cultivars in the plantation.

Seed Production Orchards

The seed production orchards were established for a variety of reasons but the principle one is to produce known sources of high quality seeds. The orchards were planted 10 years ago. There are currently over five hundred trees and shrubs representing coniferous and deciduous species from several different countries.

